WHAT IS CLAIMED IS:

1. An intake system of an internal combustion engine, comprising:

a collector fixedly connected directly to either of a side wall of a cylinder head and a collector mounting bracket hermetically covering perimeters of intake-port opening end portions of a plurality of intake ports opening through the side wall; and

a plurality of intake-manifold branches respectively communicating with the plurality of intake ports and protruded into an interior space of the collector.

2. The intake system as claimed in claim 1, wherein a vertical dimension of the collector measured substantially along the side wall of the cylinder head is dimensioned to be longer than a horizontal dimension of the collector measured in a direction substantially perpendicular to the side wall.

3. The intake system as claimed in claim 1, further comprising:

an intake-air inlet through which intake air is introduced into the collector; and

the intake-air inlet being substantially centrally located in a cylinder row direction with respect to the intake-manifold branches.

4. The intake system as claimed in claim 1, further comprising:

an air cleaner being built in the collector.

5. The intake system as claimed in claim 4, wherein:

the air cleaner is laid out to be offset from a direction that each of the intake-manifold branches is protruded into the interior space of the collector.

6. The intake system as claimed in claim 4, wherein:

the collector comprises upper and lower collector portions detachably connected to each other sandwiching the air cleaner between them; and

the air cleaner is located above a branch opening end portion of each of the intake-manifold branches.

7. The intake system as claimed in claim 4, wherein:

a bottom surface of the collector is downwardly inclined toward the intake-air inlet through which intake air is introduced into the collector.

8. The intake system as claimed in claim 1, further comprising:

a variable valve actuation system that continuously variably adjusts a valve lift characteristic of an intake valve; and

a control unit configured to be electronically connected to the variable valve actuation system for variably controlling an intake-air quantity through the variable valve actuation system.

9. The intake system as claimed in claim 8, further comprising:

a pressure control valve is located upstream of the collector connected to each of the intake ports to create a vacuum needed for the engine.

10. The intake system as claimed in claim 9, wherein;

during full load operation of the engine, an opening degree of the pressure control valve is increased and the pressure control valve is operated at its full-open operating mode so that a vacuum in the collector is reduced to a minimum.

11. The intake system as claimed in claim 9, wherein: the pressure control valve comprises a mechanical collector-vacuum feedback control mechanism whose valve opening is automatically adjusted in response to the vacuum in the collector so that the vacuum in the collector is brought closer to a desired vacuum pressure value.

12. The intake system as claimed in claim 9, wherein: blow-by gases escaping into a crankcase of the engine are recirculated into a downstream side of the pressure control valve.

13. The intake system as claimed in claim 9, wherein: blow-by gases escaping into a crankcase of the engine are recirculated into a downstream side of the air cleaner.

14. The intake system as claimed in claim 8, wherein: in a middle load range an intake valve open timing of the intake valve is set to be phase-retarded with respect to an exhaust valve closure timing.

15. The intake system as claimed in claim 14, wherein: at least a portion of an intake-system component part constructing an intake-air passage connected to each of the intake ports is made of a synthetic resin material.

16. The intake system as claimed in claim 14, wherein:

in the middle load range the exhaust valve closure timing is set to be phase-retarded with respect to a top dead center position.

17. The intake system as claimed in claim 14, wherein:

in the middle load range the exhaust valve closure timing is set to be phase-advanced with respect to a top dead center position and additionally a time period from the top dead center position to the intake valve open timing is set to be longer than a time period from the exhaust valve closure timing to the top dead center position.

18. The intake system as claimed in claim 8, wherein:

the variable valve actuation system comprises a first variable valve actuation mechanism capable of continuously variably adjusting the working angle and the lift of the intake valve.

19. The intake system as claimed in claim 18, wherein:

the first variable valve actuation mechanism comprises a drive shaft, an eccentric cam driven by the drive shaft, a first link fitted to an outer periphery of the eccentric cam to permit relative rotation of the first link to the eccentric cam, a control shaft arranged parallel to the drive shaft having a control cam whose axis is eccentric to an axis of the control shaft, a rocker arm fitted to an outer periphery of the control cam to permit relative rotation of the rocker arm to the control cam and connected at one end to the first link so that an oscillating motion of the rocker arm is produced through the first link, and a rockable cam rotatably supported on the drive shaft, and connected to the other end of the rocker arm via a second link, and being in abutted-engagement with a valve

lifter of the intake valve so that the valve lifter is pushed by cam action of the rockable cam oscillating through the rocker arm; and wherein

the working angle and the lift of the intake valve are simultaneously adjusted by varying a center of rotation of the control cam of the control shaft.

20. The intake system as claimed in claim 18, wherein:

the variable valve actuation system further comprises a second variable valve actuation mechanism capable of continuously variably adjusting a phase of a central angle of the working angle of the intake valve.